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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|-----------------|-------------|----------------------|---------------------|
|-----------------|-------------|----------------------|---------------------|

09/070,920 05/04/98 YAMADA

A 37B.P48

005514 MMC2/1122
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EXAMINER

STEWART, JR., C.

ART UNIT

PAPER NUMBER

2853

DATE MAILED:

11/22/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

| | |
|---|---|
| Application No. 09/070,920 | Applicant(s) Akitoshi Yamada, et al |
| Examiner Charles W. Stewart Jr. | Group Art Unit 2853 |

Responsive to communication(s) filed on Aug 7, 2000

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

Claim(s) 1-18 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 1-18 is/are rejected.

Claim(s) _____ is/are objected to.

Claims 19-93 are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The proposed drawing correction, filed on _____ is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Election/Restriction

1. Applicant's election with traverse of Group I, claims 1-18 in Paper No. 9 was acknowledged. The traversal is on the ground(s) that the case is not a burdensome search. In this case the inventions are distinct, each from the other because of the following reasons: Group I of independent claims 1, 4, 7 10 are drawn to a method of controlling a print operation of an ink jet printer such as cooling a print head using a predetermined method; and capping the print head after the print head is cooled. Group II of independent claims 19 and 29 are drawn to a method of cooling a print head of an ink jet printer before capping such as determining a print head temperature after receipt of last print data for a print job. Furthermore, group III of independent claims 30, 33, 36, 39, 48 and 58 are drawn to an apparatus for controlling a print operation of an ink jet printer such as a memory including a region for storing executable process steps; a processor for executing the executable process steps; and an interface between the process and a print head of the ink jet printer that allows the processor to control firing of nozzles of the print head. In addition, group IV of claims 59, 62, 65, 68, 77, and 87-93 are drawn to computer-executable process steps stored on a computer-readable medium, the computer executable process steps to control a print operation of an ink jet printer, the computer executable process steps such as code to determine a print head temperature; code to control a capping sequence based on the determined print head temperature, wherein the ink droplets are ejected at a frequency lower than a frequency used for printing. (MPEP § 806.05(e)).

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2. This is not found persuasive because the Applicants have admitted that claims of Groups I-IV are directed toward different statutory classifications, i.e., distinct inventions, and thus that is why the Examiner gave the restriction.

The requirement is still deemed proper and is therefore made FINAL.

3. Independent claims 19, 29, 30, 33, 36, 29, 48, 58, 59, 62, 65, 68, 77, and 87-93 are withdrawn from further consideration pursuant to 37 CAR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicants timely traversed the restriction (election) requirement in Paper No. 9.

Claim Rejections - 35 USC § 112

4. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

It is not clearly understood if claim 9 depends on canceled claim 8?

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a.) a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuronuma et al. U.S.P. 5,543,826 in view of Shimamura et al. U.S.P. 5,406,317.

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As best construed, et al. Kuronuma et al. discloses a method of controlling a print operation, comprising the steps of:

determining a print head temperature (col. 14, lines 9-11);
controlling a capping sequence based on the determined print head temperature (col. 12, lines 43-56).

wherein the determining step is repeated (col. 11, lines 45-47).

However, Shimamura et al. does not disclose wherein the determining step is performed once before the controlling step.

Nevertheless, Kuronuma et al. show wherein the determining step is performed once before the controlling step as set forth in col. 13, lines 16-22.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include controlling a capping sequence based on the determined print head temperature as described Shimamura et al. at the time of wherein the determining step is performed once before the controlling step, as taught by Kuronuma et al. in order to cap the print head when cooled.

7. Claims 4-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurata et al. U.S.P. 5,552,811 in view of Sekiya et al. U.S.P. 5,729,257.

As best construed, Kurata et al. disclose a method of controlling a print operation of an ink jet printer, comprising the steps of :

cooling a print head using a predetermined method (col. 7, lines 34-42); and
capping the print head after the print head is cooled (col. 8, lines 1-8).

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wherein the cooling step causes ink droplets to be ejected from the print head (col. 8, lines 39-36).

However, Kurata et al. does not disclose wherein the ink droplets are ejected at a frequency lower than frequency used for printing.

Nevertheless, Sekiya et al. teaches when the frequency of the pulses supplied to the printer heater element is at a greater kHz, since the dot forming frequency is 1 kHz.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include capping the print head after the print head is cooled as described in Kurata et al. at the time the ink droplets are ejected at a frequency lower than frequency used for printing, as taught by Sekiya et al. in order to provide efficient cooling of the print head.

8. Claims 7 and 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuronuma et al. U.S.P. 5,543,826 in view of Shimamura et al. U.S.P. 5,406,317.

As best construed, a method of controlling a print operation of an ink jet printer, comprising the steps of:

printing an image using a print head (col. 1, lines 18-28); and
cooling the print head by causing ink droplets (col. 7, lines 34-42) to be ejected from the print head after the end of the printing operation.

obtaining a parameter corresponding to a print head temperature (col. 11, lines 46-50) when the ink jet printer is down in order to determine whether a print head cooling operation has been interrupted; and

performing a predetermined process based on the parameter (col. 11, lines 34-39).

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wherein the parameter is obtained by a calculation, without using a measured actual temperature (col. 14, lines 9-15).

wherein the predetermined process occurs in a next print job performed by the ink jet printer (col. 11, lines 56-60).

wherein the predetermined process occurs at a next power-on for the ink jet printer (col. 12, lines 38-43).

wherein the predetermined process occurs at an end of a current print job (col. 3, lines 41-43).

wherein the predetermined process is determined based on whether a print head is capped or not (col. 9, lines 32-35).

wherein the predetermined process comprises purging ink from the print head (col. 12, lines 24-32).

Kuronuma et al. disclose the claimed invention except for wherein the predetermined process comprises changing a number of ink droplets ejected before a print job.

Shimamura et al. teaches wherein the predetermined process comprises changing a number of ink droplets ejected before a print job as set forth in col. 14, lines 10-16.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a method of controlling a print operation of an ink jet printer as described in Kuronuma et al. at the time changing a number of ink droplets ejected before a print job taught by Shimamura et al. in order to cool the printhead before capping.

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Response to Arguments

9. Applicants' arguments with respect to claim 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

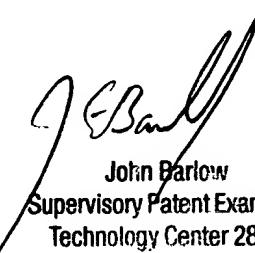
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Charles W. Stewart, Jr. whose telephone number is (703) 308-7252. The examiner can normally be reached on Monday-Friday from 8:30 a.m to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow, Jr. Art Unit 2853, can be reached on (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

cws

November 16, 2000



John Barlow
Supervisory Patent Examiner
Technology Center 2800